

Serial No. 10/620,773

Docket No. 1639.1034

**IN THE CLAIMS:**

Please AMEND claims 6 and 9 in accordance with the following:

1. (Previously presented) A method to refine a lubricant comprising a compound having a perfluoropolyether structure, the method comprising:
  - introducing a raw material of the lubricant into a pressurized vessel having an inlet part and an outlet part;
  - contacting the raw material of the lubricant with a supercritical carbon dioxide under a predetermined condition in the pressurized vessel to remove ionic impurities from the lubricant, wherein the supercritical carbon dioxide is introduced from the inlet part and flows through the pressurized vessel at a predetermined rate; and
  - recovering the lubricant, from which ionic impurities are removed, through the outlet part.
2. (Original) The method to refine a lubricant according to claim 1, wherein the predetermined condition is a combination of a temperature and a pressure at which a density of the supercritical carbon dioxide is less than or equal to a density of the supercritical carbon dioxide at a temperature of 60°C and a pressure of 20 MPa.
3. (Original) The method to refine a lubricant according to claim 1, wherein the ionic impurities are included in the group consisting of sodium ions, potassium ions, chloride ions, HCO<sub>3</sub> ions, HSO<sub>4</sub> ions, and sulfate ions.
4. (Previously presented) A method to refine a lubricant comprising a compound having a perfluoropolyether structure, the method comprising:
  - introducing a raw material of the lubricant into a pressurized vessel having an inlet part and an outlet part;
  - contacting the raw material of the lubricant with a supercritical carbon dioxide under a predetermined condition in the pressurized vessel to extract and remove a perfluoropolyether compound having a terminal group of weak polarity, wherein the supercritical carbon dioxide is introduced from the inlet part and flows through the pressurized vessel at a predetermined rate; and
  - recovering the lubricant, from which the perfluoropolyether compound having a terminal group of weak polarity is removed, from the pressurized vessel.

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5. (Original) The method to refine a lubricant according to claim 4, wherein the predetermined condition is a combination of a temperature and a pressure at which a density of the supercritical carbon dioxide is less than or equal to a density of the supercritical carbon dioxide at a temperature of 60°C and a pressure of 16 MPa.

6. (Currently amended) The method to refine a lubricant according to claim 4, wherein the perfluoropolyether compound having a terminal group of weak polarity is a perfluoropolyether compound having a terminal group included in the group consisting of -CF<sub>3</sub>, -CF<sub>2</sub>H, and -CF<sub>2</sub>Cl; -CF<sub>3</sub>, -CF<sub>2</sub>H, and -CF<sub>2</sub>Cl.

7. (Previously presented) A method to refine a lubricant comprising a compound having a perfluoropolyether structure, the method comprising:

introducing a raw material of the lubricant into a pressurized vessel having an inlet part and an outlet part;

contacting the raw material of the lubricant with a supercritical carbon dioxide under a first condition in the pressurized vessel to extract and remove a perfluoropolyether compound having a terminal group of weak polarity, wherein the supercritical carbon dioxide is introduced from the inlet part and flows through the pressurized vessel at a predetermined rate;

contacting the remaining lubricant, from which the perfluoropolyether compound having a terminal group of weak polarity is removed, with the supercritical carbon dioxide under a second condition in the pressurized vessel to remove ionic impurities from the lubricant, wherein the supercritical carbon dioxide is introduced from the inlet part and flows through the pressurized vessel at a predetermined rate; and

recovering the lubricant, from which both the perfluoropolyether compound having a terminal group of weak polarity and ionic impurities are removed, from the pressurized vessel.

8. (Previously presented) The method to refine a lubricant according to claim 7, wherein

the first condition is a combination of a temperature and a pressure at which a density of the supercritical carbon dioxide is less than or equal to a first density of the supercritical carbon dioxide at a temperature of 60°C and a pressure of 16 MPa; and

the second condition is a combination of a temperature and a pressure at which a density of the supercritical carbon dioxide is less than or equal to a second density at a temperature of 60°C and a pressure of 20 MPa.

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9. (Currently amended) The method to refine a lubricant according to claim 7, wherein the perfluoropolyether compound having a terminal group of weak polarity has a terminal group included in the group consisting of -CF<sub>3</sub>, -CF<sub>2</sub>H, and -CF<sub>2</sub>Cl; CF<sub>3</sub>, CF<sub>2</sub>H, and CF<sub>2</sub>Cl, and the ionic impurities are included in the group consisting of sodium ions, potassium ions, chloride ions, HCO<sub>3</sub> ions, HSO<sub>4</sub> ions, and sulfate ions.